

Form PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTORNEY DOCKET NO.  
MI22-2274SERIAL NO.  
10/806,923LIST OF ART CITED BY APPLICANT  
(Use several sheets if necessary)

APPLICANT: Weimin Li et al.

FILING DATE  
March 22, 2004GROUP ART UNIT  
2842-2891

## U.S. PATENT DOCUMENTS

Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
AKS	AA	3,990,927	11/1976	Montier			
	AB	4,474,975	10/1984	Clemons et al.			
	AC	5,156,881	10/1992	Okano et al.			
	AD	5,182,221	01/1993	Sato			
	AE	5,410,176	04/1995	Liou et al.			
	AF	5,470,798	11/1995	Ouellet			
	AG	5,719,085	02/1998	Moon et al.			
	AH	5,741,740	04/1998	Jang et al.			
AKS	AI	5,776,557	07/1998	Okano et al.			

## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
AKS	AJ	02277253A	11/1990	Japan (Hayashide et al.)				
	AK	146224	01/1996	Japan				
AKS	AL	06-334031	12/1994	Japan			Abstract	

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

AKS	AM	Beekmann et al., <i>Sub-micron Gap Fill and In-Situ Planarisation using Flowfill™ Technology</i> , Electrotech 1-7
		ULSI Conference, Portland, OR (October 1995).
	AN	Horie et al., <i>Kinetics and Mechanism of the Reactions of O<sup>2</sup>P with SiH<sub>4</sub>, CH<sub>3</sub>SiH<sub>3</sub>, (CH<sub>3</sub>)<sub>2</sub>SiH<sub>2</sub>, and (CH<sub>3</sub>)<sub>3</sub>SiH</i> , 95 J. PHYS. CHEM 4393-4400 (1991).
AKS	AO	Joshi et al., <i>Plasma Deposited Organosilicon Hydride Network Polymers as Versatile Resists for Entirely Dry Mid-Deep UV Photolithography</i> , 1925 SPIE 709-720 (January 1993).

EXAMINER

DATE CONSIDERED

Asst. Examiner Sarhar 11/4/05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
AKS	AA	5,786,039	07/1998	Brouquet			
	AB	5,801,083	09/1998	Yu et al.			
	AC	5,863,827	01/1999	Joyner			
	AD	5,883,006	03/1999	Iba			
	AE	5,888,880	03/1999	Gardner et al.			
	AF	5,895,253	04/1999	Akram			
	AG	5,904,540	05/1999	Sheng et al.			
	AH	5,930,645	07/1999	Lyons et al.			
AKS	AJ	5,943,585	08/1999	May et al.			

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
AKS	AJ	05-315441	11/1993	Japan			Abstract	

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
AKS	AM		Kiermasz et al., <i>Planarisation for Sub-Micron Devices Utilising a New Chemistry</i> , Electrotech 1-2, DUMIC Conference, California (February 1995).
	AN		Kojima et al., <i>Planarization Process Using a Multi-Coating of Spin-on-Glass</i> , V-MIC Conference, pp. 390-396 (June 13-14, 1988).
AKS	AO		Matsuura et al., <i>A Highly Reliable Self-planarizing Low-k Intermetal Dielectric for Sub-quarter Micron Interconnects</i> , 97 IEEE 785-788 (July 1997).
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U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
AICS	AA	5,950,094	09/1999	Lin et al.			
	AB	5,960,299	09/1999	Yew et al.			
	AC	5,972,773	10/1999	Liu et al.			
	AD	5,998,280	12/1999	Bergemont et al.			
	AE	6,030,881	02/2000	Papasoulitis et al.			
	AF	6,051,477	04/2000	Nam			
	AG	6,156,674	12/2000	Li et al.			
	AH	6,719,012	4/2004	Doan et al.			
	AI	6,583,028	6/2003	Doan et al.			
	AJ	6,300,219 B1	10/2001	Doan et al.			
AICS	AK	5,570,469	6/1998	Uram et al.			

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
AICS	AM		Matsuura et al., <i>Novel Self-planarizing CVD Oxide for Interlayer Dielectric Applications</i> ; 1994; 94 IEEE 117-120.
	AN		McClatchie et al. <i>Low Dielectric Constant Flowfill™ Technology for IMD Applications</i> , 7 pages (pre-August 1999).
AKS	AO		Withnall et al., <i>Matrix Reactions of Methylsilanes and Oxygen Atoms</i> , 92 J. PHYS. CHEM. 594-602 (1988).
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Asok Kumar Sarkar		11/4/05	
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		FILING DATE March 22, 2004	GROUP 2812

U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
AKS	AA	5,105,253	04/1992	Pollock	357	49	
	AB	5,604,149	02/1997	Paoli et al.	437	67	
	AC	5,616,513	04/1997	Shepard	438	402	
	AD	5,786,263	07/1998	Perera	438	431	
	AE	5,895,255	04/1999	Tsuchiaki	438	427	
	AF	5,923,073	07/1999	Aoki et al.	257	501	
	AG	5,981,354	11/1999	Spikes et al.	438	424	
	AH	5,989,978	11/1999	Peidous	438	436	
AKS	AI	6,033,961	03/2000	Xu et al.	438	295	

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
			EV372470	687			Yes No

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
AKS	AM		Curtis et al, "APCVD TEOS: O3 Advanced Trench Isolation Applications", Semiconductor Fabtech, 9 <sup>th</sup> Ed., p. 241 - 247
	AN		George, S.M. et al., "Atomic layer controlled deposition of SiO <sub>2</sub> and Al <sub>2</sub> O <sub>3</sub> using ABAB... binary reaction sequence chemistry", Applied Surface Science 82/83, Elsevier Science B.V., July 10, 1994, p. 460-467.
AKS	AO		Morishita et al. "Atomic-layer chemical-vapor-deposition of silicon-nitride", Applied Surface Science 112, Elsevier Science B.V., 1997, p. 198-204.
EXAMINER As Sh. Umman Sairhar		DATE CONSIDERED 11/4/05	
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U.S. PATENT DOCUMENTS							
*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
AKS	AA	6,090,675	07/2000	Lee et al.	438	301	
	AB	6,171,962	01/2001	Karlsson et al.	438	692	
	AC	6,187,651	02/2001	Oh	438	435	
	AD	6,191,002	02/2001	Koyanagi	438	431	
	AE	6,326,282	12/2001	Park et al.	438	424	
	AF	6,329,266	11/2001	Hwang et al.	438	424	
	AG	6,355,966	03/2002	Trivedi	257	499	
AKS	AH	6,583,060	06/2003	Trivedi	438	700	
	AI						

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
				EV372470687			Yes No
	AJ						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
AKS	AK		Yokoyama et al. "Atomic layer controlled deposition of silicon nitride and in situ growth observation by infrared reflection absorption spectroscopy", Applied Surface Science 112, Elsevier Science B.V., 1997, p. 75-81.
	AL		Gasser et al., "Quasi-monolayer deposition of silicon dioxide", Elsevier Science S.A., 1994, p. 213-218.
	AM		Hausmann et al., "Catalytic vapor deposition of highly conformal silica nanolaminates", Department of Chemistry and Chemical Biology, Harvard University, May 14, 2002, pp. 1-13.
AKS	AN		Shareef et al., "Subatmospheric chemical vapor deposition ozone/TEOS process for SiO <sub>2</sub> trench filling", J. Vac. Sci. Technol. B 13(4), Jul/Aug 1995, p. 1888-1892.
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Ashe Umman Sardar		11/4/05	
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U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
AKS	AA	6,448,150	09/2002	Tsai et al.	438	427	
	AB	6,617,251	09/2003	Kamath et al.	438	691	
	AC	2001/0006255 A1	07/2001	Kwon et al.	257	751	
	AD	2001/0006839 A1	07/2001	Yeo	438	435	
	AE	2001/0046753 A1	11/2001	Gonzalez et al.	438	424	
	AF	2002/0004284 A1	01/2002	Chen	438	427	
	AG	2004/0082181	04/2004	Doan et al.			
AKS	AH	10/931,524		Sandhu			08/31/2004

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		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AI						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)		
AKS	AI	Disclosed Anonymous 32246, "Substrate Contact with Closed Bottom Trenches", Research Disclosure, Feb. 1991, 1 page.
	AK	Hausmann et al., <i>Rapid Vapor Deposition of Highly Conformal Silica Nanolaminates</i> , 298 SCIENCE 402-406 (October 11, 2002)
	AL	Miller et al., <i>Self-limiting chemical vapor deposition of an ultra-thin silicon oxide film using tri-(tert-butoxy) Silanol</i> , 397 THIN SOLID FILMS 78-82 (2001).
	AM	Klaus et al., <i>Atomic Layer Deposition of SiO<sub>2</sub> Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions</i> , 6 SURFACE REVIEW AND LETTERS, Nos. 3 and 4, pp. 435-448 (1999).
EXAMINER	DATE CONSIDERED	
Asok	Anuman Sarthar 11/4/05	
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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT: Weimin Michael Li et al.			
					FILING DATE Filed Herewith		GROUP Unknown 2891	
U.S. PATENT DOCUMENTS								
*Examiner's Initials	AA	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate	
AKS	AA	6,300,219 B1	10/09/01	Doan et al.	X	X		
	AB	6,534,395 B2	03/18/03	Werkhoven et al.				
	AC	10/615,051		Vaartstra (as filed)			07/07/2003	
AKS	AD	10/655,699		Derderian et al. (as filed)			09/05/2003	
	AE							
	AF							
	AG							
	AH							
	AI							
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
AKS	AJ	WO 02/27063 A2	04.04.02	WIPO (Harvard College)	←		Yes	No
	AK							
	AL							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
AKS	AM		Hausmann et al., <i>Rapid Vapor Deposition of Highly Conformal Silica Nanolaminates</i> , 298 SCIENCE 402-406					
			(October 11, 2002)					
AKS	AN		Klaus et al., <i>Atomic Layer Deposition of SiO<sub>2</sub> Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions</i> , 6 SURFACE REVIEW AND LETTERS, Nos. 3 and 4, pp. 435-448 (1999).					
AKS	AO		Miller et al., <i>Self-limiting chemical vapor deposition of an ultra-thin silicon oxide film using tri-(tert-butoxy)</i>					
			<i>Silanol</i> , 397 THIN SOLID FILMS 78-82 (2001).					
EXAMINER		DATE CONSIDERED						
		<div style="display: flex; justify-content: space-between;"> <span>A. S. H. Kumar Sankar</span> <span>11/4/2005</span> </div>						
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	AA							
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							Yes	No
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	AK							
	AL							
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AKS	AM		Hausmann et al., "Catalytic vapor deposition of highly conformal silica nanolaminates", Department of					
			Chemistry and Chemical Biology, Harvard University, May 14, 2002, pp. 1-13.					
	AN							
	AO							
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AJS		Asok Kumar Sarker 11/4/05						
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AKS	AA	6,013,583	1/11/2000	Ajmana et al.			
	AB	2001/0041250 A1	11/2001	Haukka et al.			
	AC	2002/0000195 A1	1/2002	Kao et al.			
	AD	2002/0018849	2/2002	George et al.			
	AE	2003/0032281 A1	2/13/2003	Werkhoven et al.			
	AF	2003/00129826 A1	7/10/2003	Werkhoven et al.			
	AG	2004/0209484	10/2004	Hill et al.			
AKS	AH	2004/0266153 A1	12/30/2004	Yongjun Jeff Hu			

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
AKS	AI	EP 0817251 A	1/1998	EPO				
	AJ							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)		
AKS	AK	PCT/US2004/021156; Filed 6/30/2004; Search Report.
EXAMINER: Ashu Kumar Sarkar		
DATE CONSIDERED: 11/4/05		
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	AA						
	AB						
	AC						
	AD						
	AE						

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AF						
	AG						
	AH						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
AKS	AI		Chen et al., <i>Excimer Laser-Induced Ti Silicidation to Eliminate the Fine-Line Effect for Integrated Circuitry Device Fabrication</i> , 149 JOURNAL OF ELECTROCHEMICAL SOCIETY, No. 11, pp. G809-G812 (2002).
AKS	AJ		Nishiyama et al., <i>Agglomeration Resistant Self-Aligned Silicide Process Using N<sub>2</sub> Implantation into TiSi<sub>2</sub></i> , 36 JPN. J. APPL. PHYS., Part 1, No. 6A, pp. 3639-3643 (June 1997).
AKS	AK		Wolf, <i>Chapter 13: Polycides and Salicides of TiSi<sub>2</sub>, CoSi<sub>2</sub>, and NiSi</i> , SILICON PROCESSING FOR THE VLSI ERA, Vol. IV, pp. 603-604 (pre-2003).
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Ashish Kumar Sarhan		11/4/05	
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